EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Terrell on 10/16/12.

The application has been amended as follows:

Claims 3 and 27 have been canceled.

The claims have been amended and read as follows:

--1. A method of controlling a blood pump implanted in a patient, comprising:
operating the pump at a predetermined speed;
monitoring the patient's pump flow rate;
extracting the patient's diastolic pump flow rate from the pump flow rate, wherein the diastolic pump flow rate is a separately isolated flow contribution below a mean pump flow rate; and
changing the predetermined speed in response to the diastolic pump flow rate, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the diastolic pump flow rate.

2. The method of claim 1, further comprising:
monitoring the patient's heart rate; and
changing the predetermined speed in response to the heart rate.

4. The method of claim 2, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the heart rate.

5. The method of claim 1, wherein changing the predetermined speed includes decreasing the pump speed in response to a decrease in the diastolic pump flow rate.

6. The method of claim 2, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the diastolic pump flow rate.

7. A pump system, comprising:

a pump; and

a controller having an input for receiving a blood pump flow rate signal, the controller being programmed to extract a separate diastolic pump flow rate from the blood pump flow rate signal and provide a control signal to the pump to vary the speed of the pump in response to the separate diastolic pump flow rate, wherein the separate diastolic pump flow rate is a flow contribution below a mean flow rate.

8. The pump system of claim 7, further comprising an implantable flow measurement device having an output for providing the flow rate signal.

9. The pump system of claim 7, wherein the controller is further programmed to vary the speed of the pump in response to heart rate changes.

10. The pump system of claim 7, wherein the controller is programmed to increase the speed of the pump in response to an increase in the separate diastolic pump flow rate.

11. The pump system of claim 7, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the separate diastolic pump flow rate.

12. The pump system of claim 9, wherein the controller is programmed to increase the speed of the pump in response to an increase in at least one of the separate diastolic pump flow rate or the heart rate.

13. The pump system of claim 12, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the separate diastolic pump flow rate.

14. The method of claim 1, further comprising:
setting the predetermined speed of the pump in accordance with activities performed by the patient.

15. The method of claim 14, wherein the activities are sleeping, normal activity or high energy exertion.

19. The pump system of claim 7, further comprising an implantable pressure sensor for providing pressure sensor data to the controller.

20. The pump system of claim 19, wherein the pressure sensor data from the pressure sensor is used to derive separate diastolic pump flow rate information.

24. The method of claim 2, wherein changing the predetermined speed includes decreasing the pump speed in response to a decreasing in the heart rate.

25. The method of claim 2, wherein changing the predetermined speed includes decreasing the pump speed in response to a decrease in the diastolic pump flow rate.

26. A method of controlling a blood pump implanted in a patient, comprising:
monitoring the patient's blood pump flow rate;
extracting the patient's diastolic pump flow rate from the pump flow rate, wherein the diastolic pump flow rate is a separately isolated flow contribution below a mean flow rate; ~~and~~
changing a speed of the pump in response to the extracted diastolic pump flow rate; and increasing the speed of the pump in response to an increase in the extracted diastolic pump flow rate.

28. The method of claim 26, further including the step of decreasing the speed of the pump in response to a decrease in the extracted diastolic pump flow rate.—

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE EVANISKO whose telephone number is (571)272-4945. The examiner can normally be reached on M-F 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Niketa Patel can be reached on 571 272 4156. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/George R Evanisko/
Primary Examiner, Art Unit 3762

GRE
10/17/12